documents and to aggregate such associations in a manner consistent with the present invention.

[0018] **FIGS. 6A and 6B** illustrate exemplary data structures that may be used to store selected document identifier to query term/phrase) associations in a manner consistent with the present invention.

[0019] **FIG. 7** is a bubble chart illustrating operations that may use selected document information to query term associations to suggest targeting keywords for an ad, or a set of ads in a manner consistent with the present invention.

[0020] **FIG. 8** is a flow diagram of an exemplary method that may be used to associate query terms with advertisements, and to use such query terms as one or more types of ad information, in a manner consistent with the present invention.

[0021] **FIG. 9** is a flow diagram of an exemplary method that may be used, at one or more places, to reduce the amount of data being stored in a manner consistent with the present invention.

[0022] **FIG. 10** is a block diagram of apparatus that may be used to perform at least some of the various operations that may be used and to store at least some of the information that may be used and/or generated in a manner consistent with the present invention.

[0023] **FIGS. 11A-11D** illustrate various exemplary operations of an exemplary embodiment of the present invention.

§ 4. DETAILED DESCRIPTION

[0024] The present invention may involve novel methods, apparatus, message formats and/or data structures for generating query information to selected document information association information and using such information to help advertisers. The following description is presented to enable one skilled in the art to make and use the invention, and is provided in the context of particular applications and their requirements. Thus, the following description of embodiments consistent with the present invention provides illustration and description, but is not intended to be exhaustive or to limit the invention to the precise form disclosed. Various modifications to the disclosed embodiments will be apparent to those skilled in the art, and the general principles set forth below may be applied to other embodiments and applications. For example, although a series of acts may be described with reference to a flow diagram, the order of acts may differ in other implementations when the performance of one act is not dependent on the completion of another act. Further, non-dependent acts may be performed in parallel. No element, act or instruction used in the description should be construed as critical or essential to the present invention unless explicitly described as such. Also, as used herein, the article "a" is intended to include one or more items. Where only one item is intended, the term "one" or similar language is used. Thus, the present invention is not intended to be limited to the embodiments shown and the inventors regard their invention as any patentable subject matter described.

[0025] In the following, environments in which, or with which, the present invention may operate are described in § 4.1. Then, exemplary embodiments of the present invention are described in § 4.2. Examples of operations are provided in § 4.3. Finally, some conclusions regarding the present invention are set forth in § 4.4.

§ 4.1 Environments in which, or with which, the Present Invention may Operate

§ 4.1.1 Exemplary Advertising Environment

[0026] **FIG. 1** is a high level diagram of an advertising environment in which, or with which, the present invention may operate. The environment may include an ad entry, maintenance and delivery system **120**. Advertisers **110** may directly, or indirectly, enter, maintain, and track ad information in the system **120**. The ads may be in the form of graphical ads such as so-called banner ads, text only ads, image ads, audio ads, video ads, ads combining one of more of any of such components, etc. The ads may also include embedded information, such as a link, and/or machine executable instructions. Ad consumers **130** may submit requests for ads to, accept ads responsive to their request from, and provide usage information to, the system **120**. Although not shown, other entities may provide usage information (e.g., whether or not a conversion or click-through related to the ad occurred) to the system **120**. This usage information may include measured or observed user behavior related to ads that have been served.

[0027] One example of an ad consumer **130** is a general content server that receives requests for content (e.g., articles, discussion threads, music, video, graphics, search results, web page listings, etc.), and retrieves the requested content in response to, or otherwise services, the request. The content server may submit a request for ads to the system **120**. Such an ad request may include a number of ads desired. The ad request may also include content request information. This information may include the content itself (e.g., page), a category corresponding to the content or the content request (e.g., arts, business, computers, arts-movies, arts-music, etc.), part or all of the content request, content age, content type (e.g., text, graphics, video, audio, mixed media, etc.), geolocation information, user local time information, etc.

[0028] The content server may combine the requested content with one or more of the advertisements provided by the system **120**. This combined information including the content and advertisement(s) is then forwarded towards the end user that requested the content, for presentation to the viewer. Finally, the content server may transmit information about the ads and how, when, and/or where the ads are to be rendered (e.g., position, selection or not, impression time, impression date, size, conversion or not, etc.) back to the system **120**. Alternatively, or in addition, such information may be provided back to the system **120** by some other means.

[0029] Another example of an ad consumer **130** is a search engine. A search engine may receive queries for search results. In response, the search engine may retrieve relevant search results (e.g., from an index of Web pages). An exemplary search engine is described in the article S. Brin and L. Page, "The Anatomy of a Large-Scale Hypertextual Search Engine," Seventh International World Wide Web Conference, Brisbane, Australia and in U.S. Pat. No. 6,285,999 (both incorporated herein by reference). Such search results may include, for example, lists of Web page titles,